AMENDMENTS TO THE CLAIMS:

1. (Original) A method for transmitting control data on a downlink channel in a base station for a mobile communication system, comprising the steps of:

determining whether the base station has downlink and uplink traffic channel data;

driving, if there is no traffic data for a predetermined time period, a random position selector to determine a random gating slot position;

gating on control data at the determined gating slot position; and

gating off control data in other slot positions.

2. (Original) The method as claimed in claim 1, wherein the channel data comprises a series of frames, each frame includes a plurality of slots, slots in each frame are divided into a plurality of gating slot groups, and each gating slot group has a determined gating slot position.

3. (Original) The method as claimed in claim 2, wherein the frame is comprised of 15 slots, the slot group is comprised of 5 slots, and the determined slot position is a randomized slot position out of the slots in the slot group.

4. (Original) The method as claimed in claim 2, wherein the frame is comprised of 15 slots, and each gating slot group is comprised of 3 slots.

5. (Original) The method as claimed in claim 2, wherein the random position selector determines the gating slot position by:

calculating a value x by multiplying a system frame number (SFN) of a immediately before the transmission by a specific integer;

selecting N bits, said N bits being selected starting from a position which is at an x-chip distance from a start point of a scrambling code of a previous gating slot group ; and

determining a gating slot position of the each gating slot group by performing a modulo operation on the selected n bits, said modulo operation being by a number of slots in the gating slot group.

6. (Original) The method as claimed in claim 2, wherein the random position selector determines the gating slot position using the following equation:

$$N(G,C^i) = \left(\sum_{l=0}^{15} \left(S\left(G_{prev} \times 2560 \times \frac{1}{T} + G_{prev} + l \right) \oplus C^i_{(k \bmod 8)} \right) \times 2^{15-l} \right) \bmod T$$

where, G is a gating slot group number;

G_{prev} is a previous gating slot group number;

C^i is a Connection Frame Number (CFN) of an ith frame $(= (C^i_0 C^i_1 C^i_2 C^i_3 C^i_4 C^i_5 C^i_6 C^i_7)_2)$; and

T is a reciprocal of the gating rate.

7. (Original) The method as claimed in claim 2, wherein the random position selector determines the gating slot position using the following equation except for the first gating slot group and last gating slot group:

$$s(i,j) = (A_j \oplus C_i) \bmod S_G, \qquad j = 0,1,2,.,.,.,N_G - 1, \qquad i = 0,1,...,255$$

where, A_j is a sequence obtained by applying j bit offset to a fixed sequence;

C_i is a sequence obtained by repeating a Connection Frame Number (CFN);

S_G is a number of slots in one gating slot group; and

N_G is a number of gating slot groups in one frame.

8. (Original) The method as claimed in claim 7, wherein the random position selector determines the gating slot position of the first gating slot group except for the first slot.

9. (Original) The method as claimed in claim 8, wherein the random position selector determines the gating slot position of the last gating slot group as the last slot.

10. (Original) The method as claimed in claim 2, wherein the gating on control data includes a pilot symbol and a TPC (Transmit Power Control) bit.

11. (Original) The method as claimed in claim 2, wherein the gating on control data includes a TPC (Transmit Power Control) bit located in the determined gating slot position and a pilot symbol located in a slot previous to the determined gating slot position.

12. (Original) The method as claimed in claim 1, wherein the base station transmits, if there is no data on the downlink and uplink traffic channel for the predetermined time period, gating information includes a gating start time and a gating rate.

13. (Original) A method for transmitting control data on an uplink channel in a mobile station for a mobile communication system, comprising the steps of:
    determining whether the mobile station has uplink traffic channel data to transmit to a base station;
    transmitting, if there is no data to be transmitted over the uplink data channel for a predetermined time period, a request for gating uplink control data to the base station;
    driving, when the mobile station receives gating information including gating start time and gating rate from the base station, a random position selector to determine a random gating slot position;
        gating on control data in the determined slot position; and
        gating off control data in other slot positions.

14. (Original) A method for gating data using a plurality of slots in an ith frame in a stream of frames, wherein each frame includes a plurality of slots and the slots in each frame are

divided into a plurality of gating slot groups, each gating slot group including a plurality of slots, the method comprising the step of:

transmitting data in a slot position determined by Equations (1)-(3) below,

$$s(i,j) = \begin{cases} \left(A_j \oplus C_i\right)\mathrm{mod}(S_G - 1) + 1, & j = 0 & (1) \\ \left(A_j \oplus C_i\right)\mathrm{mod}\,S_G, & j = 1,2,...,N_G - 2, & i = 0,1,...,255 & (2) \\ S_G - 1, & j = N_G - 1 & (3) \end{cases}$$

where j is a number of a gating slot group in the ith frame;

where C_i is a sequence obtained by repeating a ith connection frame number(CFN);
and

where A_j is a sequence associated with a jth gating slot group, said sequence
obtained by applying j bit offset to a given sequence;

where S_G is a number of slots in one gating slot group; and

where N_G is a number of gating slot groups in one frame .

15. (Original) A method for gating data using a plurality of slots in an ith frame in a stream of frames, wherein each frame includes a plurality of slots and the slots in each frame are divided into a plurality of gating slot groups, each gating slot group including a plurality of slots, the method comprising the steps of:

determining a gating slot position of gating slot groups using the gating slot position formula below:

$$s(i,j) = (A_j \oplus C_i)\,\mathrm{mod}\,S_G, \qquad j = 0,1,2,..,,,.N_G - 1$$

where s(i,j) is a slot position within a jth gating slot group in a ith frame;

where j is a number of a gating slot group in an ith frame;

where C_i is a sequence obtained by repeating the ith frame number(CFN); and

where A_j is a sequence associated with a jth gating slot group, said sequence obtained by applying j bit offset to a given sequence;

gating on a Transmit Power Control (TPC) bit at the determined gating slot position; and

gating off the TPC bit at other slots.

16. (Original) The method as claimed in claim 15, wherein the gating on step comprises the steps of:

gating on the TPC bit at the determined gating slot position ; and

gating on a pilot symbol at a slot located before the determined gating slot position.

17. (Original) The method as claimed in claim 15, wherein the gating slot position determination step further comprises the step of:

determining a gating slot position in a first gating slot group of an ith frame by using a formula below:

$$s(i,j) = (A_j \oplus C_i) \mathrm{mod}(S_G - 1) + 1, \qquad j = 0 \qquad i = 0,1,...,255$$

18. (Original) The method as claimed in claim 15, wherein the gating slot position determination step further comprises the step of:

determining a gating slot position in a last gating slot group of an ith frame as a last slot.

19. (Original) A method for transmitting gated transmission of an uplink dedicated physical control channel(DPCCH) slot signal which is formed by a series of frames, each frame including a plurality of slots, for a mobile communication system, comprising the steps of:

receiving a gating information indicating gating start time and gating rate from a base station;

transmitting the DPCCH slot signal to form a random pattern for a predetermined duration.

20. (Original) A method as claimed in claim 19, wherein the random pattern is generated by determining gating on a slot position using the following equation;

$$s(i,j) = \begin{cases} \left(A_j \oplus C_i\right)\mathrm{mod}(S_G - 1) + 1, & j = 0 & (1) \\ \left(A_j \oplus C_i\right)\mathrm{mod}\, S_G, & j = 1,2,...,N_G - 2, & i = 0,1,...,255 & (2) \\ S_G - 1, & j = N_G - 1 & (3) \end{cases}$$

where, where j is a number of a gating slot group in the ith frame;

where C_i is a sequence obtained by repeating the ith frame number; and

where A_j is a sequence obtained by applying j bit offset to a given sequence;

where S_G is a number of slots in one gating slot group; and

where N_G is a number of gating slot groups in one frame .

21. (Original) A base station transmitter in a mobile communication system, in which traffic channel data and dedicated physical control channel (DPCCH) data each are comprised of a series of frames, and each frame includes a plurality of slots, comprising:

a gating position selector for determining a gating slot position when there is no data to transmit on the traffic channel for a predetermined time period, and for dividing the slots in each frame into a plurality of gating slot groups, each of said gating slot groups having a random gating slot position; and

a gated transmission controller for controlling a DPCCH slot corresponding to the selected gating slot position.

22. (Original) The base station transmitter as claimed in claim 21, wherein the gating position selector determines the gating slot position by using formulas (1)-(3) below:

$$s(i,j) = \begin{cases} \left(A_j \oplus C_i\right) \bmod (S_G - 1) + 1, & j = 0 & & (1) \\ \left(A_j \oplus C_i\right) \bmod S_G, & j = 1,2,...,N_G - 2, & i = 0,1,...,255 & (2) \\ S_G - 1, & j = N_G - 1 & & (3) \end{cases}$$

where j is a number of a gating slot group in the ith frame;

where C_i is a sequence obtained by repeating the ith frame number (CFN=i); and

where A_j is a sequence associated with a jth gating slot group, said sequence

obtained by applying j bit offset to a given sequence;

where S_G is a number of slots in one gating slot group; and

where N_G is a number of gating slot groups in one frame.

23. (Original) The base station transmitter as claimed in claim 21, wherein the gating position selector determines the gating slot position by using the following formula:

$$s(i,j) = (A_j \oplus C_i) \bmod S_G, \qquad j = 0,1,2,.,.,,.N_G - 1, \qquad i = 0,1,...,255$$

where s(i,j) is a slot position within a jth gating slot group in a ith frame;

where j is a number of a gating slot group in the ith frame;

where C_i is a sequence obtained by repeating the ith frame number; and

where A_j is a sequence associated with a jth gating slot group in the ith frame,

said sequence obtained by applying j bit offset to a given sequence.

24. (Original) The base station transmitter as claimed in claim 21, wherein the gating position selector determines the gating slot position by using the following formula:

$$s(i,j) = \left(A_j \oplus C_i\right) \bmod (S_G - 1) + 1, \qquad j = 0 \qquad i = 0,1,...,255$$

where s(i,j) is a slot position within a jth gating slot group in a ith frame;

where j is a number of a gating slot group in the ith frame;

where C_i is a sequence obtained by repeating the ith frame number; and

where A_j is a sequence associated with the jth gating slot group, said sequence

obtained by applying j bit offset to a given sequence.

25. (Original) The base station transmitter as claimed in claim 21, wherein the gating position selector determines the gating slot position by using the following formula:

$$s(i,j) = S_G - 1, \qquad j = N_G - 1, \qquad i = 0,1,...,255$$

where s(i,j) is a slot position within a jth gating slot group in a ith frame;

where j is a number of a gating slot group in the ith frame;

where C_i is a sequence obtained by repeating the ith frame number; and

where A_j is a sequence associated with a jth gating slot group, said sequence obtained by applying j bit offset to a given sequence.

26. (Original) The base station transmitter as claimed in claim 22, wherein the gated transmission controller gates on a pilot symbol at a slot located before a determined gating slot, and gates on at least one Transmit Power Control (TPC) bit and at least one Transport Format Combination Indicator (TFCI) bit at the determined gating slot.

27. (Currently Amended) A mobile station transmitter in a mobile communication system, in which traffic channel data and dedicated physical control channel (DPCCH) data each includes a series of frames, and each frame includes a plurality of slots, comprising:

a gating slot position selector for determining a gating slot position when the mobile station receives gating information includes gating start time and gating rate ~~form~~ from a base station, and dividing the slots in each frame into a plurality of gating slot groups, each of said gating slot groups having the gating slot position;

a gated transmission controller for gating on at the determined gating slot position and gating off the other slot signal in a gating slot group.

28. (Original) An apparatus for gating data of a plurality of slots in an ith frame in a series of frames, wherein each frame includes a plurality of slots and the slots in each frame are

divided into a plurality of gating slot groups, each gating slot group including a plurality of slots, the apparatus comprising:

a first memory for storing a sequence C_i, said sequence obtained by repeating the ith frame number;

a second memory for storing a sequence A_j associated with a jth gating slot group, said sequence A_j obtained by a given sequence;

a multiplier for performing an exclusive-or operation on the sequences C_i and A_j;

a modulo operator for performing a modulo operation on an output of the multiplier, said modulo operation being by a number of slots in a gating slot group, where the result is a gating slot position in the jth gating slot group; and

a gated transmission controller for gating on the data in the determined gating slot position and gating off the other slot data in the gating slot group.

29. (Original) The apparatus as claimed in claim 28, wherein the gated transmission controller transmits Transmit Power Control (TPC) bit at the determined gating slot position, and a pilot symbols of a slot located before the determined gating slot position.

30. (Currently Amended) The apparatus as claimed in claim 27, 28, wherein the modulo operator determines the gating slot position of the first gating slot group as one of the slot in the first gating slot group except for the first slot.

31. (Original) The apparatus as claimed in claim 28, wherein the modulo operator determines the gating position of the last gating slot group as a last slot.